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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/229,945	01/13/1999	RYOHEI KUKI	TI-28532	5138

23494 7590 02/19/2002

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EXAMINER

GHAYOUR, MOHAMMAD H

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 02/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

NM

<b>Office Action Summary</b>	<b>Application No.</b> 09/229,945	<b>Applicant(s)</b> KUKI ET AL.	
	<b>Examiner</b> Mohammad H Ghayour	<b>Art Unit</b> 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 January 1999.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)              | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement submitted on 1/13/1999 has been considered and made of record by the examiner.

### ***Specification***

The disclosure is objected to because of the following informalities: in page 1, line 26, the word "reduced" should be changed to --increased-- because by increasing signal-to-noise ratio the error rate is decreased not by reducing it.

Appropriate correction is required.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: in claim 1, line 3, the word "said" should be deleted (no antecedent basis), in line 4, the first "a" should be changed to either --the-- or --said--, and, in line 6, the word "an" should be deleted. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 2, 4, 7, 9-10, 12, 14, 17, 18, 22, 25-26, and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Reed et al. (US Patent 5,961,658, hereafter Reed). As to claim 1, figure 6 of Reed's patent disclose a post-processor that uses a Viterbi detector for receiving sampled partial response of a mass data storage comprising a filter (inside block 146, see co. 12, lines 46-57) for filtering the recovered partial response data, a predetermined threshold value (see col. 3, lines 33-35) to compare the filtered signal against, generating an error pattern (output of block 146) when a predetermined error pattern occurs (see description of figure 6) and a circuit 150 for modifying (i.e. correcting) the recovered data when the filtered output signal exceeds the threshold (see col. 3, lines 33-35). As to claim 9, figure 6 of Reed's patent discloses a sampled data detection circuit used in mass data storage device comprising an equalizer (filter) 130 for reading the data from the storage device and outputting EPR4 data (see col. 11, lines 17-19. note a recited transducer such as magnetic reading head is an inherent part of any data record/read device), a Viterbi detector (block 134. see col. 9, lines 40-45, figure 7, col. 5, lines 29-30, and col. 4, lines 34-37) having partial response detection level of EPR4 for detecting the actual sampled partial response data, a delay circuit 142 for delaying the actual sampled data by an amount equal to

Art Unit: 2634

Viterbi detector's processing time (see col. 11, lines 24-26), a block 138 for converting the recovered data to partial response level, a subtracter for subtracting the converted data from the delayed data to produce an error, an error pattern detector circuit 146 (including pattern error detection and threshold comparator, see col. 3, lines 32-35) for detecting the occurrence of a pattern error in the recovered data, and an error correction circuit 150 for correcting the error in response to the output of block 146. As to claim 18, as explained in more detailed above, blocks 134, 146, the subtracter inputting signals 140 and output of delay block 142 and outputting signal 144, and block 150 disclose all of the subject matter claimed with the function of recited threshold circuit described in col. 3, lines 32-35). As to claims 2 and 28, the disclosed Viterbi detector in Reed's patent is an EPR4 Viterbi detector (see block 134, and col. 4, lines 34-37). As to claims 4, 14, and 22, Reed discloses the error event pattern of (+1 and -1, see col. 4, lines 45-46). As to claims 7, 12, 25, and 26 this limitation is taught by Reed in col. 4, lines 48-52. . As to claim 10, the recited limitations are disclosed in Reed's patent col. 4, lines 30-37. As to claim 17, this limitation is taught by Reed in claim 15.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

Art Unit: 2634

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 11, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (US Patent 5,961,658, hereafter Reed1) as applied to claims 1, 9, and 18 above, and further in view of Reed et al. (U.S. Patent 6,052,248, hereafter, Reed2). Reed1, discloses all the subject matter claimed, see above, except for the further limitations as recited in claims 3, 11, and 29. Reed2 discloses the use of EEPR4 Viterbi detector, in the same field of endeavor, for the purpose of detecting the sampled partial response data. See figure 5, block 134, col. 3, lines 6-31, and col. 5, lines 15-37. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an EEPR4 Viterbi detector in order to achieve a better detection performance at higher data densities (see col. 3, lines 26-31).

Claims 8, 13, 19-21, and 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Reed1 as applied to claim 1, 9, and 18 above, and further in view of Zook (US Patent 6,185,175). As to claims 8, 13, 19, and 27, Reed1 discloses all the subject matter claimed, see above, except for the further limitations as recited in claims 8, 13, 19, and 27. Zook discloses, in the same field of endeavor, the use of Whitening filters for the purpose of whitening the noise. See col. 9, line 28 to col. 10, line 40 and

claim 3. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a whitening filter in order to whiten the noise in the received data. As to claims 20 and 21, the claimed filters transfer functions are a general polynomial form of transfer function of any filter (specifically claim 19) and therefore, is not given an patent weight.

Claims 5, 6, 15, 16, 23, and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Reed1. Reed1, discloses all the subject matter claimed, see above, except for disclosing the specific error patterns as recited in claims 5, 6, 15, 16, 23, and 24. Reed1, however, discloses a variety of other error patterns as disclosed in tables 4 and 5 and the related description. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made chose from a variety of possible error patterns in order to achieve his/her design criteria.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad H Ghayour whose telephone number is (703) 306-3034. The examiner can normally be reached on M-TH, 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Application/Control Number: 09/229,945

Page 7

Art Unit: 2634

Mohammad Ghayour  
February 11, 2002

M. Gh-  
MOHAMMAD H. GHAYOUR  
PRIMARY EXAMINER